Expressing Negation

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Introduction*

My focus in this paper is the syntax-semantics interface for the interpretation of negation in languages which show negative concord, as illustrated in the sentences in (1)-(4).

(1) *Nobody* said *nothing* to *nobody*. [NS English]
'Nobody said anything to anyone.'

(2) Maria *didn't* say *nothing* to *nobody*. [NS English]
'Maria didn't say anything to anyone.'

(3) Mario *non* ha parlato di *niente* con *nessuno*. [Italian]
'Mario hasn't spoken with anyone about anything.'

(4) *No* m'ha telefonat *ningú*. [Catalan]
'Nobody has telephoned me.'

Negative concord (NC) is the indication at multiple points in a clause of the fact that the clause is to be interpreted as semantically negated. In a widely spoken and even more widely understood nonstandard dialect of English, sentences (1) and (2) are interpreted as synonymous with those given as glosses, which are also well-formed in the dialect. The examples in (3) from Italian and (4) from Catalan illustrate the same phenomenon.

The occurrence in these sentences of two or three different words, any one of which when correctly positioned would be sufficient to negate a clause, does not guarantee that their interpretation involves two or three independent expressions of negation. These clauses express only one negation, which is, on one view, simply redundantly indicated in two or three different places; each of the italicized terms in these sentences might be seen as having an equal claim to the function of expressing negation.

However closer inspection indicates that this is not the correct view. Not all of the negative terms in (1)-(4) are redundant; if the first negative phrase in each of these sentences is removed or replaced by an appropriate nonnegative phrase, the sentences become ungrammatical, losing their NC construal. Apparently the first negative item in each of these sentences has a better claim to expressing the

* This research was supported by NSF Grant BNS-9021398. Earlier versions of this work have benefitted from comments by a number of people. I am grateful for comments on this version by my colleagues Judith Aissen, Sandra Chung, Donka Farkas, James McCloskey, and Louise McNally, as well as the SALT II audience.

negation of the clause than the others do.[1] So we might pose the question: which of the occurrences of negative phrases in a clause showing negative concord expresses the negation?

The title of this paper derives from this question. I will investigate the assumptions behind it, clarifying what I mean by 'expressing negation'. My proposal will be a form of objecting to the presupposition of the question. I will outline a view on which none of the negative terms in these clauses directly expresses negation. Rather, I will explore a theory of the interpretation of such clauses in which one does not associate a recognizable negation operator as the lexical interpretation of any of the visible formatives in the sentence, but rather with an abstract aspect of clause structure which must be licensed by a morphologically negative phrase.

The argument will proceed as follows: I will first discuss the reason that negative concord languages seem to pose a challenge for compositional interpretation and show that we can maintain standard assumptions about logical interpretation if we detach the expression of clausal negation from the lexical interpretations of the apparently negative terms. The analysis I propose will lean heavily on the notion of an indeterminate or indefinite argument familiar from Heim (1982). Doing so will provide a unified way of viewing the relationship between negative concord and systems of argument negative polarity items. I will then argue that the proposed analysis can be the basis for an explanation of an important generalization about how negative concord languages systematically differ from languages which do not allow concord. In doing so, I will draw on insightful work in the syntax of negation by, among others, Zanuttini (1988, 1991) and Laka (1990), without doing justice to the details of the syntactic argumentation in those works. This discussion is intended as a contribution on the semantic side to the debate about how apparently negative terms in such languages should be interpreted.

In developing this paper, I attempt to maintain a studiously ambivalent stance on the relation between the interpreted structures and surface syntactic structure. I do so in an effort to try to demonstrate that the abstractness of the proposal is at least initially consistent with a range of views of logical form.

Challenge for Compositional Semantics?

Let us begin by examining in some detail the view on which negative concord might seem problematic for semantic interpretation by asking ourselves:

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[1] As stated, this is not a general property of NC clauses. The negative subject in *nobody never telephoned me* may be replaced without loss of the expression of negation or grammaticality.

what meaning shall be assigned to the expressions *nobody, nothing,* and *not* ?[2] The rich algebra of Montagovian type-theory provides a variety of options for appropriate denotations. For the two argument expressions, the theory of generalized quantifiers provides a ready interpretation: the set of sets or properties which are disjoint from a base set of persons or non-persons. For the particle *not*, the simple truth-function or a function mapping propositions into their complement propositions would suffice. For those concerned that the syntax of *not* suggests that it is adjoined to VP and therefore should have an interpretation which combines directly with the unsaturated meaning of the VP, a function mapping properties into their complements will give the right result. For those convinced that despite the VP-adjoined syntax of *not*, the subject position should fall in its scope, a raised type assigned to the VP, one which expects a generalized quantifier as argument, will do the trick. In any event, it is easy to assign denotations to these elements which allow them to express negation in the sense, following Zwarts (ms), that their interpretations are functions which are anti-additive[3]. The assignment of interpretations which express negation to these morphologically negative phrases predicts that each instance will express an independent negation.

As long as we restrict ourselves to non-NC languages like standard English, a straightforward interpretation procedure will yield a plausible answer for a sentence like (5), one which entails that Mary talked to somebody. That is because the negation expressed by *didn't* will cancel the negation expressed by *nobody*.

(5) Mary *didn't* talk to *nobody*.

But confronted with the interpretation of (5) under a negative concord construal, we are presented with a problem: If both *didn't* and *nobody* express negation, then something must be done to rid ourselves of one of the expressions of negation. Thus negative concord looks like a problematic construction. However we know that negative concord is a wide-spread phenomenon, one might even speculate that it is the unmarked case. So it behooves us to examine in some more detail what the assumptions underlying the straightforward procedure for semantic interpretation lead us to this conclusion.

I will refer to the structure which is semantically interpreted as 'logical form' and make reference to it as lower-case *lf* (to reserve *LF* specifically for *lf* in GB). The following seem to me to be fairly widely-accepted assumptions about the relation between logical form in this general sense and surface syntactic structure. In general, logical forms are assumed to be conservative in that to the extent possible, the formatives of surface structure are formatives of lf. That is, the units

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[2]I will discuss NC in terms of English clauses like (1) and (2) and English phrases, though I intend these to be representatives of parallel structures and phrases in other NC languages.

[3]There are a range of algebraic properties which can be identified across these functional types as negation of various strengths. Here I assume that a phrase *expresses negation* iff its interpretation is anti-additive. A function f is anti-additive iff $f(A \vee B) = f(A) \wedge f(B)$.

of surface structure are treated as basic expressions for interpretation unless there is good reason to relate them to multiple units of lf. Further, the structural relations in s-structure have correspondents in structural relations in lf. These conservative assumptions are common to views of lf ranging from attempts at surface interpretation to the standard view of LF in GB.

Of most relevance to this discussion of NC is the assumption about the formatives of lf, because much of the discussion of the interpretation of NC revolves around the question of how many ways argument expressions like *nobody* can be interpreted in logical form. An lf can be less conservative with respect to its treatment of a s-structure formative like *nobody* in two ways: the s-structure formative can be decomposed in lf, so that it corresponds to multiple basic expressions of the lf language, or it can be mapped onto two (or more) distinct basic expressions of lf. In the discussion below, we will be interested in a relaxation of conservativity which relates terms like *nobody* to two lf constituents, a negative and a nonnegative one.

An interpretation for lf assigns interpretations to the basic ('lexical') elements of the lf language. Another standard assumption is that such interpretations are assigned to basic phrases qua types, not tokens. That is, lexical meaning is not assigned context-sensitively; the lexicon (of lf) stipulates interpretations for lexical items without reference to their embedding context or other elements in the lf.

To illustrate this assumption, let us consider briefly an analysis of NC which proposes that the language of lf contains a single formative *nobody*, but the assignment of its lexical interpretation is structure-sensitive: it is interpreted as the generalized quantifier $\lambda P[body' \wedge P = \emptyset]$ in subject position and a non-negative meaning in non-subject position, say $\lambda P[body' \wedge P \neq \emptyset]$, which is the complement of its negative interpretation. Under these assumptions, (5)-(7) would be given correct NC interpretations, with the negation expressed either by the inflected auxiliary or the term in subject position.

(6) Nobody talked to Mary.
(7) Nobody talked to nobody.
(8) Nobody didn't talk to Mary.
(9) Mary talked to nobody.

Sentence (8) will be interpreted as in standard English, with the two negative terms expressing independent negations.[4] However note that such an account has a serious flaw; it predicts that (9) will mean that Mary talked to somebody. The status of clauses like (9) will be of interest to us later, but as an independent sentence, (9) would never have this meaning in any of the languages we are

[4]This follows from the assumption that *didn't* here always expresses negation. As will be discussed in more detail below, the pattern in (5)-(6) is appropriate for one dialect of English and languages like Italian, but not for another dialect of English and languages like Catalan.

concerned with; it would be ill-formed. The status of (9) highlights the fact that a context-sensitive interpretation of terms in a NC clause would be relational in the sense that the assignment of meaning would not depend only on structural position but also on the presence of other items in the clause. That is, crucial to assigning *nobody* the non-negative interpretation in (5) is the fact that it occurs in a VP under the scope of another negative expression. A similar point could be made about *never*, which when it precedes the tensed verb will express negation if the subject does not, but will not express negation if the subject does.

I know of no one who has defended abandoning the assumption that lexical interpretation assignment is context-free and I will not either. Whatever the basic expressions of lf are, they must receive interpretations as types not tokens and so if we must interpret some tokens of negative phrases in one way and some in another, they must be distinct basic expressions of lf and their distribution must be determined by the principles governing the definition of well-formed lfs.

Hence I conclude that interpreting NC forces us to consider the possibility that the language of lf contains distinct negative and non-negative phrases corresponding to the terms in the negative concord clause; the formatives of lf will be systematically richer than the formatives of s-structure. We can illustrate the difference with the following sketch of a different account: The item *nobody* is ambiguous between two basic expressions of lf: *nobody[+]* and *nobody[-]*. The former is always interpreted as $\lambda P[body' \wedge P \neq \varnothing]$ and the latter as $\lambda P[body' \wedge P = \varnothing]$. The problem posed for interpreting sentences (5)-(9) becomes a problem of determining which occurrences of *nobody* in s-structure correspond to *nobody[+]* and which correspond with *nobody[-]* in lf. However that is determined, the assignment of an interpretation to these two lf phrases will be univocal and context-free.

We hereby turn a putative context-sensitive assignment of meaning into a more familiar syntactic problem: determining the distribution of these two items in well-formed lfs. Following the (ultimately inadequate) suggestions above, the interpretations of these sentences could be determined by assuming that *nobody* corresponds to *nobody[-]* in subject position and *nobody[+]* elsewhere. The problem raised with (9) could be handled by a further requirement that *nobody[+]* be licensed by occurring only in the scope of some expression of negation.

The conclusion of the discussion in this section then should be that NC does not really constitute a challenge for compositional semantics. Rather negative concord focuses our attention on the principles that determine the relationship between the naive notion of lexical formatives in a language and the basic phrases of lf. In particular, it focuses us on the question of how to relate the morphosyntactic notion of negative which unites the terms in the concord relation with the semantic property of expressing negation and it narrows our examination to proposals which relate concordant terms to two distinct, complementary elements of lf.

Negative Incorporation/Absorption

We now turn to the question of which of the items in a negative concord clause express negation and the new question of how the distribution of the If correspondents of these terms is determined. In analyzing clauses like (5)-(9) above, we assumed that only the occurrences of *nobody* in subject position express negation; other occurrences do not. So we must propose principles which insure that *nobody[-]* occurs only in subject position and *nobody[+]* does not occur there.

Since the distribution of *nobody[-]* and *nobody[+]* is complementary and the meanings assigned to the two are boolean complements, a solution can be framed as a projection problem of s-structure *nobody* onto *nobody[-]* and *nobody[+]*. Either *nobody[-]* or *nobody[+]* can be chosen as the default projection and the range of the other can be governed by a principle which changes the default into the marked item. When *nobody[-]* is chosen as the default projection, the principle governing the distribution of *nobody[+]* can be called 'negative absorption', in the sense of Higginbotham and May (1981); when *nobody[+]* is the default, the principle governing the distribution of *nobody[-]* can be called negative incorporation. We can illustrate the difference with two proposals for the analysis of NC in Italian.

In a recent discussion of negative concord in Romance and West Flemish, Haegeman and Zanuttini (1990:21-22) propose an absorption account in their rule of 'factorization', which applies in determining logical forms for NC clauses. Their rule is stated in (10):

(10) In languages that show NC, when two negative quantifiers raise they undergo a process which we will informally call factorization: instead of creating two (or more) consecutive instances of a universal quantifier each followed by an instance of negation, negation is factored out and the two (or more) universal quantifiers become one binary (or n-ary) quantifier:

48.a[$\forall$x $\neg$] [$\forall$y $\neg$] ([$\forall$z $\neg$]) = [$\forall$x,y(,z)] $\neg$

The relation between this rule and the foregoing discussion is obscured by the fact that the formulation in (10) is influenced by some other considerations in their analysis which will not concern us here. First, they assume that negative arguments are to be interpreted as universal quantifiers taking scope over a negation operator and that this analysis is made explicit in the formatives of If. I have assumed that the argument expressions are interpreted as existentials within the scope of a negation. Their treatment is motivated principally by the assumption that the universal nature of these terms is the determining factor in stating the distribution of particles which mean *almost*, and that the decomposition is required to capture that distribution. Since a full addressing of this motivation is beyond

my intention here, I will assimilate their proposal to the assumption that NC terms are existentials within the scope of a negation in (10′):

(10′) In languages that show NC, when two negative quantifiers raise they undergo a process which we will informally call factorization: instead of creating two (or more) consecutive instances of an existential quantifier each preceded by an instance of negation, negation is factored out and the two (or more) existential quantifiers become one binary (or n-ary) quantifier:

$$[\neg\ \exists x]\ [\neg\ \exists y]\ ([\neg\ \exists z]) = \neg[\exists x,y(,z)]$$

We can see clearly how this is a principle of negative absorption. The default If correspondent of *nobody* would be $[\neg\ \exists z]$ and where the factorization rule applies, it will correspond with $[\exists z]$[5]. However since the decomposition of items like *nobody* into logical representations in the determination of If is not a crucial part of an absorption analysis, its essence can be further distilled to the more conservative (10″).

(10″) In languages that show NC, after two negative quantifiers have raised they undergo negative absorption: every occurrence of a negative expression in the immediate scope of a negative expression is made nonnegative:

$$\underset{[\text{-}]}{\textit{nobody}}\ \underset{[\text{-}]}{\textit{nobody}} \Rightarrow \underset{[\text{-}]}{\textit{nobody}}\ \underset{[+]}{\textit{nobody}}$$

(Obligatory; iterative; bottom-up)

This rule assumes that the negative value for *nobody* is the default interpretation for the concordant term and states the distribution of the nonnegative value. As stated, it is embedded in an analysis which assumes that these terms raise in the derivation of logical forms. As such it must apply to representations in which the primacy relations among the operators in If mirror those of s-structure. If we assume this, then it guarantees that the nonnegative version of the quantifier will show up only under the scope of a licensing negation and the assumption that the rule applies iteratively, bottom up, guarantees that any cluster of negative quantifiers will be reduced to a single negation. What is responsible for NC on this analysis is the obligatory absorption principle.

The alternative negative incorporation approach can be illustrated by the analysis of Italian NC presented in Rizzi (1982). In that account, *nessuno* shows up in If marked either [+neg] or [-neg]. He assumes that *nessuno* is [-neg] by default and interpreted as a negative polarity item. The negative construal, corresponding to our *nobody[-]* is assigned via the rule in (11) (p. 124):

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[5]Ignoring the issue of combination into an n-ary binding operator.

(11) *nessuno* → [+neg] when c-commanded by VP.

This analysis guarantees that the item will be interpreted as negated only outside the VP (e.g. in subject position) and that all VP internal occurrences (necessarily not c-commanded by the VP node) will remain nonnegative. The assumption that the [-neg] occurrences of *nessuno* are negative polarity items of some sort guarantees that they must occur in the scope of something which expresses negation. Finally, assuming that there is at most one position in which *nessuno* could be c-commanded by VP entails that the clause will contain at most one negation expressed by *nessuno*. As Rizzi notes, this kind of analysis, which associates the expression of negation with an abstract aspect of clause structure rather than with the lexical interpretations of the apparently negative expressions in the sentence harks back to Klima's (1964) analysis of negation in English.

The absorption and incorporation solutions share some assumptions: (a) that the negative expressions of the language correspond to two different logical formatives, one expressing negation, and one not; and (b) that a rule governs the relative distribution of the one of the logical formatives. The differ principally in the claim about which generalization is easier to state: where negative phrases do not express negation (the absorption account) or where negative phrases do express negation (the incorporation account). Ideally each account would seek to eliminate as much of the stipulatory nature of its rule as possible by reducing its effects to other, known phenomena. One way of doing this is to propose that the duplicity of the negative argument expressions in If is a reflex of a simple lexical ambiguity: that they are ambiguous between negative quantifiers and negative polarity items, which are known items of limited distribution. This idea has much to recommend it and we will pursue in the rest of this paper an idea which exploits this means of restricting the nonnegative If correlates of surface negative phrases. Let us first consider the principles which govern the distribution of negative polarity items like *anybody*.

NPIs as 'Indefinites'

In sentence (12), the italicized items are negative polarity items (NPIs), which must be licensed by the occurrence of an appropriate expression of negation. In (12), the negation marked on the inflectional head of the clause counts as the license for these items.

(12) Maria **didn't** say *anything* to *anybody*

Negative polarity items have been traditionally considered to be 'indefinites', and I believe it is best to interpret this in the sense of Heim 1982. An indefinite is an argument expression which has descriptive content but no inherent quantificational or referential force. It composes with other expressions to yield parameterized meanings. These parameters are grounded, typically by existential

binding, at some point in the interpretation. According to Heim's original proposal, these parameters must be grounded whenever they fall in the restriction or nuclear scope of an operator, a category into which negation should clearly fall. The operator that triggers the anchoring or binding of an indefinite I will call the *roof* of the indefinite.[6]

Negative polarity items like *any* and *ever* can be treated as indefinites which are subject to twin licensing requirements, one which holds of logical form and one which holds of surface structure. The logical form condition is that they must be roofed (and are hence never directly referential) and that their roof in lf must be an appropriately negative operator. I will temporarily pass over the question of how to characterize the notion 'appropriately negative' and whether negative polarity items differ from each other in what property they require of their licenses and roofs and concentrate on the existence of the other condition, the surface structure licensing requirement. This requirement is illustrated by the ill-formedness of (13), where a negative-polarity item appears in subject position.

(13) *Anybody **didn't** say anything to anybody

Despite plausible arguments that clausal negation can take the subject position in its scope, it cannot license negative polarity items there. What is true of well-licensed polarity items (at least in single clause sentences) is that they are always c-commanded by a licensing expression in surface structure. Note that a non-NPI indefinite which does not have any s-structure licensing requirement can occur in the same position and be roofed by negation:

(14) A train didn't arrive for four hours.

The existence of this s-structure c-command requirement for licensing (and its locality) plays an important role in Progovac (1988), which explores the parallels between the polarity item licensing system and binding-theoretic accounts of the distribution of pronouns and anaphors. Returning to the interpretation of (12), we can see that both the NPIs are licensed in s-structure by the c-commanding *didn't* and that (13) can be interpreted only based upon a logical form in which the NPI indefinites are roofed (and existentially closed) by the negation operator expressed by *didn't* .

Among the things which recommend the view of NPIs as indefinites is that it explains what Linebarger (1980) called the immediate scope constraint. She pointed out that simply requiring that NPIs be in the scope of some negation in logical form was too liberal a license: if some logical operator intervenes between the negation and the polarity item, the item will not be licensed. This can be illustrated by considering the sentence (15).

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[6]Sometimes the roof of an indefinite is also its binder, but in the cases that we will be interested in, it is typically not.

(15) a. Meg didn't read every book to a student.

b. $\neg(\forall x{:}book(x))\,(\exists y{:}student(y))$ [read (Meg, x, y)]

I think that it is easy to construe this sentence with the interpretation given by the formula (15b): Not every book got read. If the NP *a student* is interpreted as an indefinite, then it may be roofed by the universal quantificational NP, which in turn falls in the scope of the negation. The other five logically possible construals are less accessible for various reasons, but what is relevant is that (15b) is a possible construal. However if we substitute a negative polarity indefinite for *a student*, as in (16), this construal disappears.

(16) Meg didn't read every book to any student.

A construal of (16) parallel to (15b) is ruled out by Linebarger's Immediate Scope Constraint, which stipulates that no operator can intervene between the license and the item. On the view adopted here, it follows automatically from the treatment of these items as indefinites because the If condition for the NPI is not met on such a construal: though the NPI indefinite is in the scope of a licensing operator, it is not roofed by it.[7]

From this brief examination of negative polarity items I will take three points: the plausibility of analyzing negative polarity items as indefinites; the fact that a language may provide a range of items which are 'indefinite', but subject to differing licensing conditions; and that in the case of NPIs, the licensing involves both a requirement on logical form and one on s-structure.

Reducing Concordant Terms to NPIs

We embarked on the discussion of negative polarity items as a prelude to reducing the distribution of the non-negative correspondents of negative terms in If to the theory of NPIs. The hope is that the theory of NPI licensing can eliminate the need for a special absorption or incorporation rule as part of the determination of If.

Assuming that negative terms are systematically ambiguous between expressions of negation and NPI indefinites, one interpretation of a NC clause like (2) would be exactly that sketched for (12), with the NPI version of *nobody* substituted for *anybody* and with *didn't* as the s-structure license and If roof for the indefinites. In any well-formed NC structure, there will always be one negative phrase which c-commands all the others in s-structure. In a clause like (1), the

[7] It follows assuming that in these cases the indefinites cannot be assigned scope higher than the clause in which they occur. An analysis in terms of indefinites also cleans up the problem of licensing multiple NPIs which complicates a structural formalization of the constraint.

subject phrase will not be interpretable as a NPI, as it would not be licensed in s-structure; it must be interpreted as an expressor of negation.

The attempted reduction of the distribution of the absorption/incorporation analysis to an ambiguity between negative quantifiers and NPIs has this to recommend it: half of the action of the absorption or incorporation rule will follow automatically: the NPI terms will always be s-structure licensed and If roofed by an expressor of negation. However as it stands, it falls short in several ways as complete theory of negative concord.

One concern is that the class of licensing operators for NPIs like *anybody* is systematically broader than the class of licenses for negative concord terms. While a wide range of expressions with monotonically decreasing but not anti-additive interpretations license *anybody*, only '*n*-negations' license the concord terms. However it is likely that polarity items in a language differ from each other in their 'strength', that is, in which requirements they impose on their roofs. That is, while some polarity items are happy to be roofed by monotone decreasing operators, others require anti-additive roofs. It could be that the difference between concordant terms and other NPIs in the language falls within this normal range of variation. So let us assume that a semantic characterization of the property of negative concord licenses can be given and proceed, noting that there are differences between the licensing of NPIs in concord relations and other NPIs.

Closer examination of the consequences of the proposal will stretch our notion of NPI in another way: in some languages the negative phrases associated with the head of the clause must be viewed as concordant terms and allowed an NPI interpretation. The English dialect in which (17a) and (17b) are synonymous (or languages like Catalan, cf. (18)) commit us to seeing *didn't* (or, respectively, *no*) as not expressing negation.

(17) a. Nobody said nothing
b. Nobody didn't say nothing

(18) a. *Ningú* ha vist en Joan. Nobody has seen John.
b. *Ningú no* ha vist en Joan. Nobody has seen John.

This is because, the English dialects in which (17b) is negative concord do not allow an *any* type NPI in subject position (Cf. Labov 1972). We are led to the conclusion that in such sentences, *didn't* or *no* does not express negation. The sense in which it is meaningful to call *not* or *no* a negative polarity item remains to be explored, but the need to be able to rob these apparent archetypal expressors of negation of their ability to do so seems clear.[8]

Having noted these two points, we turn to more serious concerns. If we assume that negative terms are systematically ambiguous between expressors of

[8]The analysis which I propose below will not eliminate the need to consider these items as non-expressors of negation in these languages.

negation and NPIs, the difference between a negative concord language and a non-negative concord language is a pattern of lexical ambiguity. A language which does not allow NC is presumably one which does not allow NPI interpretations for any of its negative phrases. Since lexical ambiguity is generally seen as an item-by-item affair, this suggests that we might find NC languages with a mix of NC properties for its items, e.g. *nobody* participates in NC but *nothing* doesn't. *Never* does participate in concord, but *nothing* and *nobody* don't. As far as I know, there are not any such languages.[9]

There are two more points on which our attempted reduction must be strengthened. First, it contains nothing to block the inference that there is no such thing as a purely NC language, i.e. on which does not also allow interpretations of these clauses as expressing multiple negations. The absorption/incorporation rule enforces a complementary distribution on the If correspondents of negative terms. The theory of negative polarity items restricts the distribution of the NPIs but does nothing to restrict the distribution of the negative expressors (beyond requiring that there be one if there are any NPIs). In a language which is strictly negative concord, something must be added to restrict the distribution of the negative quantifiers. Otherwise every sentence which contains multiple negative phrases should have both a double negation (DN) and a NC construal. One possible reaction would be to classify all of the negative expressors as strong 'affirmative polarity items'. However doing so aggravates further the concern that the locus of difference between NC and DN languages is a pattern of item-by-item stipulations in the lexicon and it does nothing to correlate the presence of NC with the absence of a DN reading.

Structural Condition on the Expression of Negation

Finally, I think that there is a failure of explanation of the syntactic constraints on NC. The analysis as it stands gives no reason to think that the possibility of NC construal would have syntactic restrictions on it apart from the requirement that NPI concordant terms would all be c-commanded by a negative-expressing term. That is, parallel to negative polarity licensing like (19a), we would expect (19b) to have a negative concord reading.

[9]There ARE variations, but these treat all the simple argument expressions as one class, opposed (sometimes) to syntactically complex argument expressions, and the non-argument, INFL associated items.

(19) a. She gave ***nothing*** to *anyone*
b. She gave ***nothing*** to *nobody*.
c. She ***didn't*** give *nothing* to *nobody*.

But in fact (19b) is not well-formed in NC English and structurally parallel cases are apparently never well-formed in a strict NC language. What (19b) should mean must be expressed by a structure like (19c), where the expressor of negation is associated with the head of the clause. In a NC language, it is impossible to express the negation only in the VP. This is characterized by Zanuttini (1991, 153) as the constraint in (20):

(20) Constraint on the assignment of sentential scope to negation: Negation can take sentential scope only if at s-structure it is in a position from which it c-commands both the Tense Phrase and the Agreement Phrase.

A quick survey of some negative concord languages will illustrate this claim. The sentences in (21) from Italian exemplify NC clauses. (21a) and (21b) show that any number of argument expressions in the VP can be concordant with the negative adverb *non*. (21c) and (21d) show that *nessuno* in subject position can express negation and have argument negations concordant with it. (21e) shows that postverbal subjects can be concordant with *non*. The condition of interest here is what is responsible for the ungrammaticality of (21f) and (21g), in which the only expressions of negation are in the VP.[10]

(21) a. Mario *non* ha visto *nessuno*. Mario has seen noone.
b. Mario *non* ha parlato di *niente* con *nessuno*. Mario hasn't spoken with anyone about anything.
c. *Nessuno* ha visto Mario. Nobody has seen Mario.
d. *Nessuno* ha parlato con *nessuno*. Noone has spoken with anyone.
e. *Non* ha telefonato *nessuno*. Nobody telephoned.
f. *Mario ha visto *nessuno*.
g. *Ha telefonato *nessuno*. Nobody telephoned.
i. **Nessuno non* ha visto Mario.

As the data in (22a) and (22b) indicate, the facts for Spanish are parallel. *Nadie* in the VP is not sufficient to negate the clause.

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[10]Alessandro Zucchi reported in comments after the SALT presentation that his native dialect of Italian seemed to depart from the standard Italian judgements expressed here in allowing sentences like (f) and (g), in effect counterexemplifying the claim made here. The question of whether such a language can be described within the system outlined below without reducing its empirical claims to vacuity remains open at this point and a question for further investigation.

(22) a.	*(No) vimos a nadie.	We didn't see anyone
.b	*(No) comió nadie.	No one ate.
.c	Nadie (*no) comió.	No one ate.

Among the various English NC dialects, two can be distinguished by the data in (23). The pattern of NC in column A is exactly parallel to the Spanish and Italian cases. The ungrammaticality of (23d) would explained by the requirement that the expression of negation must be high enough in the clause structure to c-command the head of the clause.[11]

(23)		NC-A	NC-B
a.	Nobody said nothing	NC	NC
b.	Joan didn't (never) say nothing	NC	NC
c.	Joan never said nothing	NC	NC
d.	Joan said nothing	*	*
e.	Nobody didn't say nothing	DN or *	NC

Finally, the ungrammaticality of (24b) and (24d) shows that Catalan shows the same property.

(24) a.	En Pere *no* ha fet *res*.	Peter has done nothing.
b.	*En Pere ha fet *res*.	
c.	*No* m'ha telefonat *ningú*.	Nobody has called me.
d.	*M'ha telefonat *ningú*.	
e.	En Pere *(*no*) renta *mai* els plats	Peter never washes the dishes
f.	*Ningú* (*no*) ha vist en Joan.	Nobody has seen John.
g.	En Pere *mai* (*no*) fa *res*	Peter never does anything.

Licensing the Expression of Negation

So where are we? I have surveyed the field of approaches to the interpretation of NC. We have concluded that the solution to NC must be part of the determination of logical form in the general sense, and delimited two

[11] I am assuming that these sentences should count as ungrammatical in these dialects, though the judgement from native speakers that one is likely to get in such cases is that it is understood but just 'not the normal way of saying it'. I assume that the fact that speakers of these dialects do not reject such sentences completely is due to the influence of the standard dialect of English.

approaches: the absorption analysis, which assumes that the basic meaning is negative, and the incorporation analysis, which assumes that the basic meaning is nonnegative. This led to a consideration of whether the details of either approach would follow from the proposal that the items were ambiguous between negative quantifiers and negative polarity items. Along the way, we noted that the theory of polarity licensing entails conditions which are met at s-structure and conditions which are met at lf. I faulted the ambiguity proposal on two main points: that it did nothing to correlate the absence of DN readings with the presence of NC construals and it gave no reason to expect a structural condition on the expression of negation.

Now it is time to propose a final account. Let us first remind ourselves what we mean by an item expressing negation: that it be interpreted as a function which is anti-additive. Let us consider the sentences we have been analyzing again and ask two questions. What is the evidence that it is possible for negative terms not to express negation? The mere existence of NC clauses offers that evidence. This was the 'challenge' to compositional interpretation. Once these items are given interpretations which express negation, they should be able to express negation wherever they occur. Every negative concord clause with *n* negative phrases must contain *(n-1)* occurrences of a negative phrase that does not express negation.

Now, what evidence is there that these items can express negation? Interestingly, I think that we find much less. All we can find in a negative concord language is, typically, that clauses containing these items are in fact interpreted as negated, but that is not the same thing. In fact, the discussion around (20) above shows that the presence of one of these items in a clause is not in fact sufficient condition for the expression of negation. If we find evidence that individual instances of these items express independent negations within the same clausal domain, that would count as evidence. So DN languages are presumably languages in which these terms do in fact express negation. But in a NC language in which only one of these expressions can express negation in a particular clause, the way is open for proposing that the negative phrases in fact never express negation. In effect, we could propose that they are univocally interpreted as NPI indefinites and that it is not necessary that any visible formative of S-structure actually express negation.[12]

But if that is true, how does the negation get expressed and how are these polarity items licensed? Recalling the discussion above, we see that we have two separate questions to ask: what items in the sentence license them and what operator in lf roofs them?

The answer to the second question must be: a negation operator, preferably (anti-morphic) negation. But where does that operator come from? It need not be

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[12]In this respect my proposal agrees with Laka (1990), who treats all these phrases as NPIs. It will differ from her account in not requiring them to be s-structure licensed when they are licensors of the expression of negation.

part of a lexical meaning: it may be constructional, in the sense that it is associated with some structural feature not necessarily visible in the clause. Once we realize that, we are free to imagine that the negation operator can simply be added in at some point in the interpretation of a clause. But surely it cannot be added in 'willy nilly'. Its 'expression' must itself be licensed by something, and the license for the expression of negation can be these negative terms.

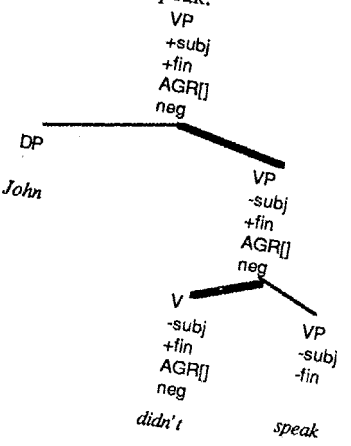
This sounds like sophistry: in NC languages, *nobody* doesn't express negation, but it licenses the (constructional) expression of negation. The difference *is* a sophisticated one, but I think a reasonable one to explore. To make the proposal clearer, I will work out the outlines of two forms of the analysis. The first will be a GPSG-style phrase structure analysis with a very conservative notion of lf. The second will be a mutation of that analysis into a GB-style analysis. I think that the essence of the two analyses are the same, but the further syntactic consequences of the second are perhaps more elaborate that those of the first.

Interpreting NC structures: GPSG

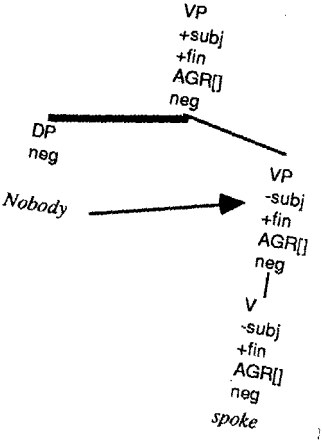
Assume that in the category structures of a language there is a feature [neg], the morphosyntactic feature inherently specified for all negative phrases. As with all features in GPSG, we must specify conditions which govern the distribution of this feature. Assume that its projection is governed by the Head Feature Convention of GKPS (Gazdar et al (1985)), so that its occurrence on a lexical head guarantees its occurrence on every projection of that head. Assume further that it is a semantically potent feature (GKPS, 224); that is, it plays a role in the interpretation of a structure. When the feature [neg] occurs on clausal nodes, it will trigger the application of a propositional negation operator to the propositional interpretation of the clause otherwise determined by the composition principles. By our definition then, it is the feature [neg] which expresses negation, not the lexical category which introduces it.

It follows from these assumptions that any clause whose head bears the feature [neg] will be interpreted as negated. This handles examples like (25), but does not yet handle the negation in structures like (26) and (27).

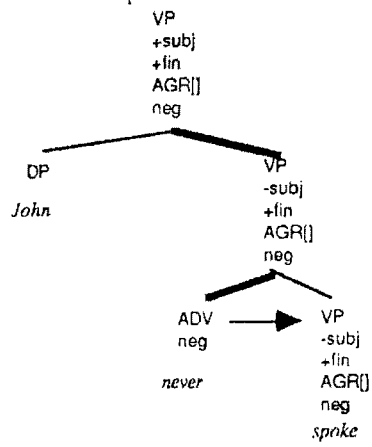
(25) John didn't speak.



(26) Nobody spoke.



(27) John never spoke.



To get the right result for these cases, we must assume that [neg] is also affected by the principle (28), akin to the Control-Agreement Principle.[13]

(28) A category inherits the feature [neg] from a specifier sister or an adjoined sister.

Augmented by this principle, we have an account of the expression of negation in languages like the B dialect of NC English and Catalan.[14] Assuming that all the negative argument expressions are univocally indefinites which are strong NPIs, i.e. must be roofed in lf by a negation operator, we have an account of the pattern of negative concord. The semantic licensing requirement on *nobody* and *never* will be met because these indefinites will be roofed by the negation

[13]The fact that a mother node will inherit the feature from a head daughter or a non-head daughter might suggest that [neg] acts like a Foot Feature. This possibility might be exploited in cases where it can be inherited from complement daughters as well, but for the languages considered here, this would not be the right result, as it would not provide a way of blocking the negation of the clause in *John talked to nobody*. Given that [neg] is a head feature, it is predicted to appear on the head of the clause as well. I have not followed out the consequences of this statement sufficiently to be sure that no untoward consequences of this result.

[14]These are the languages in which the [neg] element associated with the head of the clause may be concordant with a negative subject or preceding adverbial. I believe that the best account of the difference between NC English-A and NC English-B and between Italian and Catalan would involve a condition in the first language of each pair on the head-associated negation which requires that it not be c-commanded by another [neg] constituent in s-structure. However I will not pursue this point here.

operator introduced at the clause level by [neg].[15] This also gives an account of the ungrammaticality in these cases of sentences like (29):

(29) John talked to nobody.

The [neg] feature introduced by *nobody* will not be able to license the expression of the negation at the clausal level, and so qua NPI will not be properly roofed in the interpretation of the clause, rendering the sentence ill-formed.

It remains to ask what s-structure licensing conditions these [neg] NPIs have. It appears that either they differ from *any* items in having no s-structure licensing condition, or that they are self-licensing. I do not know if there is any empirical way to distinguish these two positions, but it is clear from (30) that the items which bear [neg] must count as s-structure licenses for the other NPIs.[16]

(30) Nobody ever left.

This analysis then resolves the questions raised above about the interpretation of NC in the following way. Why do clauses which show NC express only one negation even though they may contain multiple occurrences of [neg] phrases? Because there is only one node at which the feature is semantically potent.[17] Neither absorption nor incorporation are needed since the various argument terms serve only to license the expression of negation at the clausal node; they do not express negation directly. What is the basis for (20), Zanuttini's structural generalization about the expression of negation? These are the only positions in the structure from which the clause node is accessible by the assumed feature distribution principle (28). To the extent that (28) is stipulative, we might look for a way of reducing it to other known principles of feature distribution. But the effect of (28) is to license the instantiation of the feature [neg] on the head of the clause.

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[15]The fact that items like *nessuno* in Italian can be licensed in polar interrogative complements though *nobody* in NC English cannot be is on this view a result of differing constraints on the operators which may roof these indefinites.

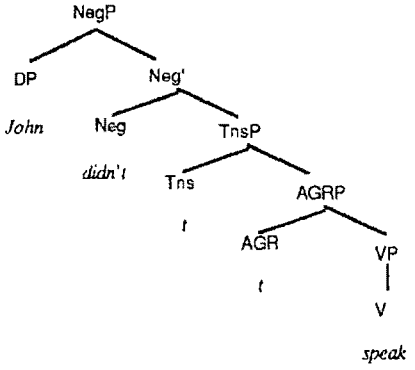
[16]This represents a departure from the theory of Ladusaw 1979, in which the property of being a license is defined only in terms of the interpretation of the item. If what is proposed here is sustainable, then these [neg] phrases are a class whose licensehood is defined morphosyntactically rather than semantically.

[17]The restriction to clausal nodes here is for illustrative purposes only. It is likely that there are other nodes at which the feature should be semantically potent. One view of the difference between NC languages and non-NC languages is that the latter may have DP as a domain in which the feature is potent, deriving the interpretation of *nobody* as the generalized quantifier which expresses negation.

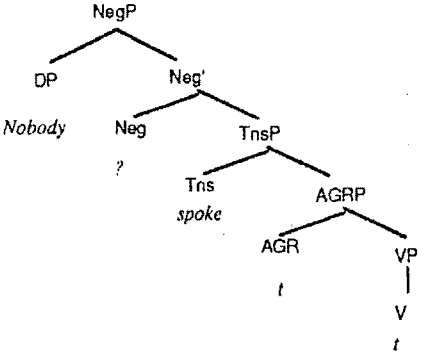
A GB-esque Account

The outlines on the syntactic side of a GB-esque version of the proposal can be derived from the discussion above by assuming that the features [neg], [fin], and [AGR], which in the GPSG account are part of a single clause-spine projection, are given independent projections as functional categories and that other principles and stipulations insure that the verb will move into the head position of some of these projections. Unfolded in this way, the trees in (25)-(27) become those in (31)-(33), ignoring the movement of the subject DP.

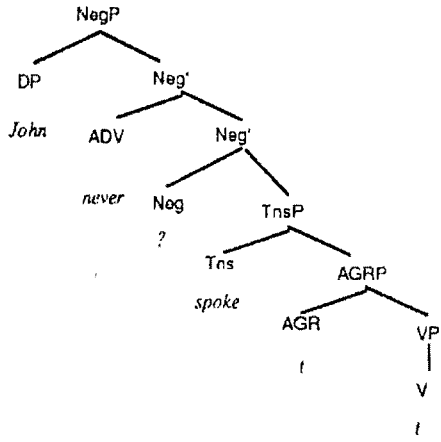
(31)



(32)



(33)



Clauses will either be projections of Tense^0 or Neg^0. Semantically, the composition rules for LF will contribute the negation operator to the interpretation structures rooted in NegP, but not to those rooted in TnsP.[18] The derivation of LFs from these s-structures would presumably involve the adjunction of the various negative argument expressions to NegP or TnsP. Interpreted as indefinites, they should be roofed by the negation operator which applies to the (maximal) NegP in the interpretation of LF.

As sketched here, the account assumes that (32) and (33) are NegPs, though there is no formative in the clause which necessarily serves as head, as there is in (31). These correspond to cases in the phrase structure account in which the distribution of the feature [neg] was passed to the clause projection via the principle in (28). In this account, we may ask what licenses the projection of Neg, the *?* in (32) and (33).

One approach to the question is a 'Neg Criterion', as discussed in Haegeman and Zanuttini, which makes use of Specifier-Head agreement. This covers half of the cases covered by (28), accounting for (32). But it is not immediately obvious how it extends to the case of (33), where the adverb is presumably not in a specifier position.

Another approach, which I will adopt here, is to see Neg^0 as a kind of NPI. But lest our notion of NPI get stretched too thin, let us immediately note that all we wish to assume is that Neg^0 is like an NPI in being subject to a surface structure licensing condition which mentions the feature [neg]. In (32) and (33), Neg^0 is

[18] I realize that the relative positioning of the various functional projections is a matter of debate and do not enter into that debate here. I also take no stand on whether the verb in (32) and (33) should move into Neg or not.

properly licensed by being c-commanded by a negative phrase. In (31), it is self-licensed.

Conclusions

I have attempted to cover a wide territory in this discussion, cruising at a level of abstraction which I hope is not too high to see that there are some results here.

Basic assumptions about how syntactic analyses are to be given semantic interpretations focus the attention of the analyst of negative concord on the principles which determine If in the general sense. We have surveyed a number of approaches to constraining the mapping between s-structure and If to account for negative concord, and proposed that the account which makes the least novel stipulation about NC would be one in which concordant terms are interpreted as indefinites and the expression of negation is done abstractly, not by assigning argument phrases interpretations which express negation.

The theory of negative concord and the licensing of NPIs require attention to both structural conditions satisfied at s-structure and semantic conditions satisfied at If. The former guarantee that a expression of negation is licensed at a fairly superior position in a clause. The latter guarantee that the phrases which are interpreted as indefinites can be conventionally particular about the semantic properties of their roofs. The idea that each language can choose among the range of options still leaves a wide area of 'wiggle-room' for systems of negation.

However given the variation in the syntactic requirements on negative phrases in various languages, it seems best for the time being to leave the semantic side of the theory general, consisting only of the theory of indefinites and their roofs, while detailed accounts of both the structures of individual languages *and* their semantic interpretations are worked out.

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